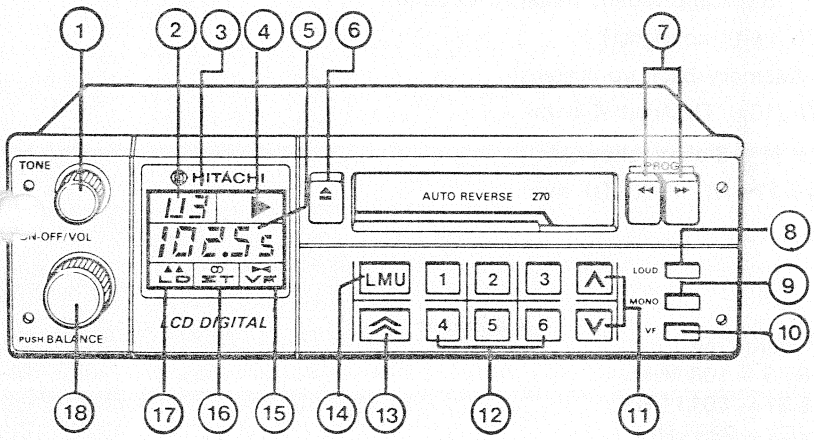
HITACHI
SERVICE MANUAL

TK | No. 2454E

CSK-270V

TN-R1 chassis



CONTENTS

Specifications 2
Disassembly 3
Lubrication 4
Adjustment 5
Adjustment parts location 6
Inspection of mechanism 8
Schematic diagram 9
Circuit board diagram 11
Wiring diagram 15
Exploded view 17
Replacement parts list 19
Installation 23

KEY TO ILLUSTRATION

① TONE CONTROL
② BAND INDICATOR
③ PRESET CHANNEL INDICATOR
④ PROGRAMME INDICATOR
⑤ FREQUENCY INDICATOR
⑥ EJECT BUTTON
⑦ FAST FORWARD/REWIND BUTTONS and PROGRAMME BUTTONS
⑧ LOUDNESS SWITCH
⑨ MONO SWITCH
⑩ VF SWITCH
⑪ MANUAL TUNING BUTTONS (UP/DOWN)
⑫ PRESET BUTTONS
⑬ AUTO TUNING BUTTON (SEEK)
⑭ BAND SELECT SWITCH
⑮ TRAFFIC INFORMATION/TOUR ELECTRONIC INDICATOR
⑯ FM STEREO INDICATOR
⑰ LOUDNESS INDICATOR
⑱ POWER SWITCH/VOLUME CONTROL and BALANCE CONTROL (Push)

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

AUTO REVERSE CASSETTE PLAYER with LW/MW/FM ELECTRONIC TUNER

May 1986 TOKAI WORKS

SPECIFICATIONS

GENERAL SPECIFICATIONS

Semiconductors:	ICs:	13
	Transistors:	59
	FETs:	2
	Diodes:	26
	Zener Diodes:	6
	Varicaps:	3
Power Supply:	DC 14.4 V (10.8 – 15.6 V allowable), Negative Ground	
Current Consumption:	500 mA (with no signal) 3 mA (Memory back up current)	
Output:	2 x 5 W (10% THD) at 4 ohms	
Speaker Impedance:	4 ohms (4 – 8 ohms allowable)	
Dimensions:	50 (H) x 179 (W) x 150 (D) mm	
Weight:	1.5 kg	

RADIO SECTION

Circuit System:	Superheterodyne
Tuning Range:	FM: 87.5 – 108 MHz MW: 531 – 1611 kHz LW: 153 – 299 kHz
Intermediate Frequency:	FM: 10.7 MHz MW: 450 kHz LW: 450 kHz
Sensitivity:	FM: 8 dBμ (Pra) MW: 30 dBμ (Pra) LW: 40 dBμ (Pra)
Automatic Tuning Sensitivity:	FM: 20 dBμ (DX), 40 dBμ (Local) MW: 30 dBμ (DX), 50 dBμ (Local) LW: 30 dBμ (DX), 60 dBμ (Local)
Antenna (aerial):	Car Antenna (aerial)

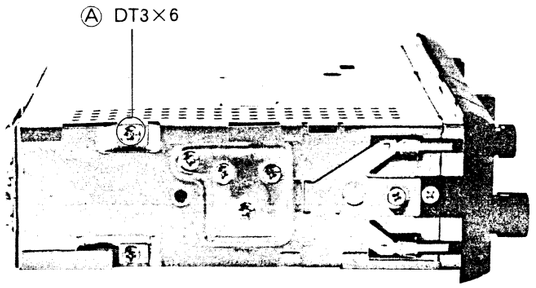
TAPE PLAYER SECTION

Tape:	Cassette Tape
Tape Speed:	4.75 cm/s
Track System:	4-Track 2-Channel Stereo
Frequency Range:	40 Hz to 16 kHz
S/N (Signal to noise ratio):	52 dB
Wow and Flutter:	0.15% (WRMS)
Cross-talk:	45 dB
Motor:	DC Motor

DISASSEMBLY

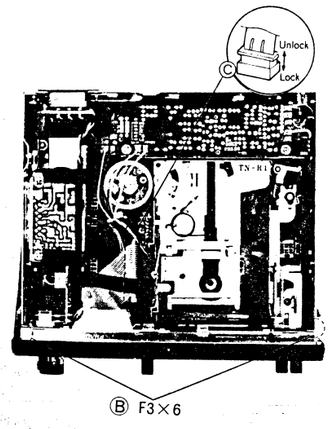
1. Upper cover

Remove the screw Ⓐ.



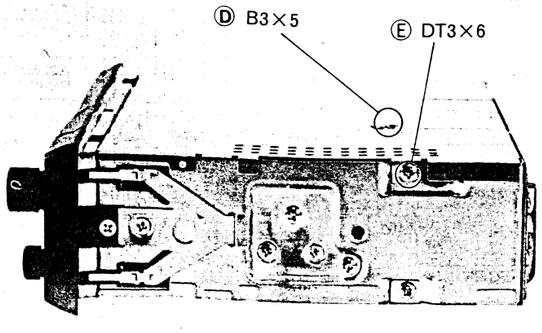
2. Escutcheon assembly

1) Remove the upper cover.
2) Remove the two knobs.
3) Remove the two screws Ⓑ.
4) Unlock the connector Ⓒ and remove the flexible PC board.



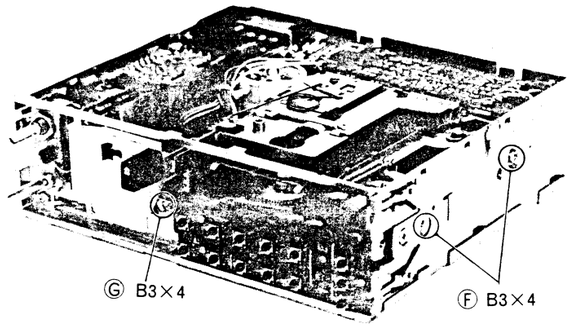
3. Under cover

Remove the two screws Ⓓ and Ⓔ.



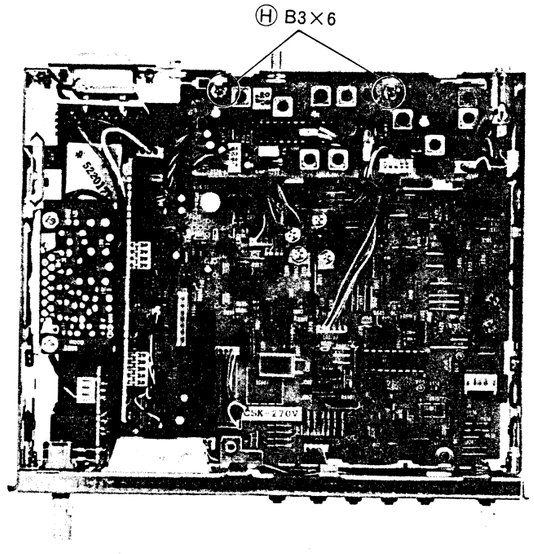
4. Cassette chassis

1) Remove the three screws Ⓕ and Ⓖ.
2) Remove the two connectors.



5. AM PC Board

Remove the two screws Ⓗ.

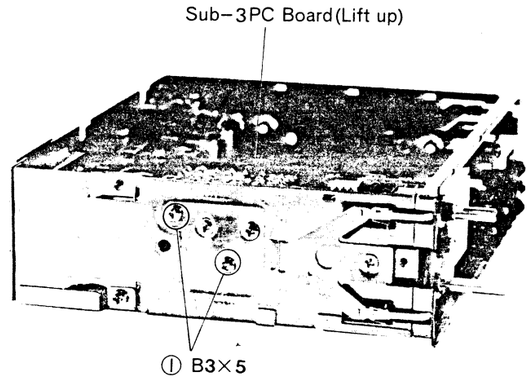


6. Sub-3 PC Board

Lift up the Sub-3 PC board carefully.

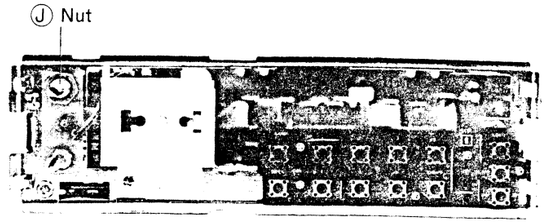
7. Power PC Board

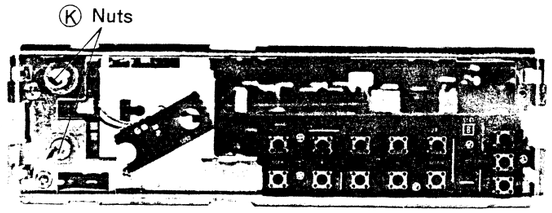
Remove the two screws Ⓘ.



8. VR (Volume) PC Board

1) Remove the Power and Sub-3 PC boards.
2) Remove the nut Ⓙ and then remove the Lamp PC board.
3) Remove the two nuts Ⓚ.
4) Pull the VR PC board carefully.





LUBRICATION

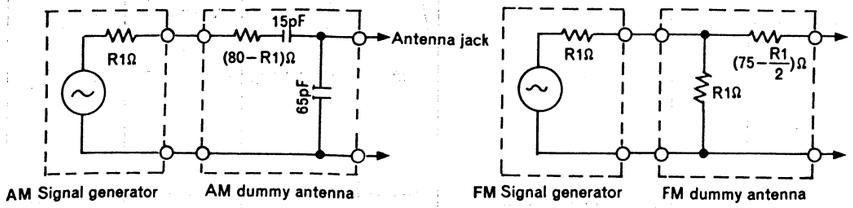
Lubricate one or two drops of oil to rotating point or lubricate grease to sliding point.
Lubricate the respective parts listed once every 1000 hours or once a year under normal conditions of use.
Avoid oiling them excessively, or rotation may become irregular because of oil splashes.

Lubrication point		Oil or Grease
Rotary section	Metal and metal	Pan motor oil (10W-40)
	Mold and metal	Sonic slider oil (#1600)
Sliding section	Metal and metal	Hitasol (MO-138)
	Mold and mold Mold and metal	White grease (FL-LUBE-A)
Spring resonance prevention		Froil (GB-TS-1)

TUNER

ADJUSTMENT

Dummy Antenna



Step		Adjustments	Measuring instrument & connection: Measuring instrument	Input terminal	Output terminal	Signal generator frequency	Display frequency	Adjust	Reading
1	(1)	AM IF	• AM signal generator (400 Hz, 30% mod.) • VTVM	Antenna jack (thru AM dummy antenna)	Speaker terminal (4Ω load)	603 kHz	603 kHz	T153 T154	Max. output (See Note 1.)
2	(1)	MW covering	• AM signal generator (400 Hz, 30% mod.) • DC volt meter (input impedance over 1 MΩ)	Antenna jack (thru AM dummy antenna)	R154 (V. tune)	1611 kHz	1611 kHz	CT153	7.9V ± 0.1V
	(2)					531 kHz	531 kHz	L154	1.1V ± 0.1V
	(3)		Repeat steps (1) and (2)						
2	(1)	LW covering	• AM signal generator (400 Hz, 30% mod.) • DC volt meter (input impedance over 1 MΩ)	Antenna jack (thru AM dummy antenna)	R154 (V. tune)	299 kHz	299 kHz	CHECK	5.4V ± 0.3V
	(2)					153 kHz	153 kHz	L155	1.4V ± 0.1V
	(3)		Repeat steps (1) and (2)						
3	(1)	MW tracking	• AM signal generator (400 Hz, 30% mod.) • VTVM	Antenna jack (thru AM dummy antenna)	Speaker terminal (4Ω load)	603 kHz	603 kHz	T151 T152	Max. output
	(2)					1404 kHz	1404 kHz	CT151 CT152	
	(3)		Repeat steps (1) and (2)						
4	(1)	LW tracking	• AM signal generator (400 Hz 30% mod.) • VTVM	Antenna jack (thru AM dummy antenna)	Speaker terminal (4Ω load)	200 kHz	200 kHz	T155 T156	Max. output
5	(1)	MW stop sensitivity check	• AM signal generator (400 Hz, 30% mod.)	Antenna jack (thru AM dummy antenna)	——	999 kHz	999 kHz	——	DX . . . 30 dBμ ± 6 dBμ Local . . 50 dBμ ± 10 dBμ
6	(1)	LW stop sensitivity check	• AM signal generator (400 Hz, 30% mod.)	Antenna jack (thru AM dummy antenna)	——	200 kHz	200 kHz	——	DX . . . 30 dBμ ± 10 dBμ Local . . 55 dBμ ± 12 dBμ
7	(1)	FM IF	• FM signal generator (400 Hz, 30% mod., 20 dBμ input) • DC volt meter (input impedance 1 MΩ)	Antenna jack (thru FM dummy antenna)	FM zero center T.P. (pattern 2 points)	94.0 MHz	94.0 MHz	T201	0V ± 50 mV (See Note 2.)
8	(1)	FM covering check	— ditto —	— ditto —	R154 (V. tune)	87.5 MHz	87.5 MHz	—	1.4V ± 0.5V
	(2)					108.0 MHz	108.0 MHz	—	7.2V ± 0.3V
9	(1)	FM limiter	• FM signal generator (400 Hz, 30% mod.) • VTVM	Antenna jack (thru FM dummy antenna)	Speaker terminal (4Ω load)	94.0 MHz	94.0 MHz	RT202	12 dBμ ± 1 dBμ (See Note 3.)

Step		Adjustments	Measuring instrument & connection: Measuring instrument	Input terminal	Output terminal	Signal generator frequency	Display frequency	Adjust	Reading
10	(1)	FM pilot canceller	• FM signal generator (pilot: 10% mod., 74 dBμ) • VTVM	Antenna jack (thru FM dummy antenna)	Speaker terminal (4Ω load)	94.0 MHz	94.0 MHz	RT001	Minimum (See Note 4.)
11	(1)	FM separation	• FM stereo signal generator (Main & Sub 30% mod., pilot 10% mod., 74 dBμ) • VTVM	Antenna jack (thru FM dummy antenna)	Speaker terminal (4Ω load)	94.0 MHz	94.0 MHz	RT002	25 ± 5 dB (See Note 5.)
12	(1)	FM ASCS	• FM signal generator (400 Hz, Main & Sub 30%, pilot 10%, 35 dBμ) • VTVM	Antenna jack (thru FM dummy antenna)	Speaker terminal (4Ω load)	94.0 MHz	94.0 MHz	RT203	10 dB (See Note 6.)
13	(1)	FM auto stop	• FM signal generator (400 Hz, 30% mod.) • DC volt meter	— ditto —	TP-3	94.0 MHz	94.0 MHz	RT201	DX . . . . . 20 ± 4 dBμ Local . . . . . 40 ± 10 dBμ (See Note 7.)
14	(1)	FM Touring Level	• FM signal generator ((pilot: 10% Main & Sub 30% mod., SK 5%, BK, 60%, DK 30% mod.) • Syncro-ossilo scope	Antenna jack (thru FM dummy antenna)	Anode of D619	94.0 MHz	94.0 MHz	RT351	35 μS (See Note 8.)

ADJUSTMENT PARTS LOCATION

MAIN P.C.BOARD

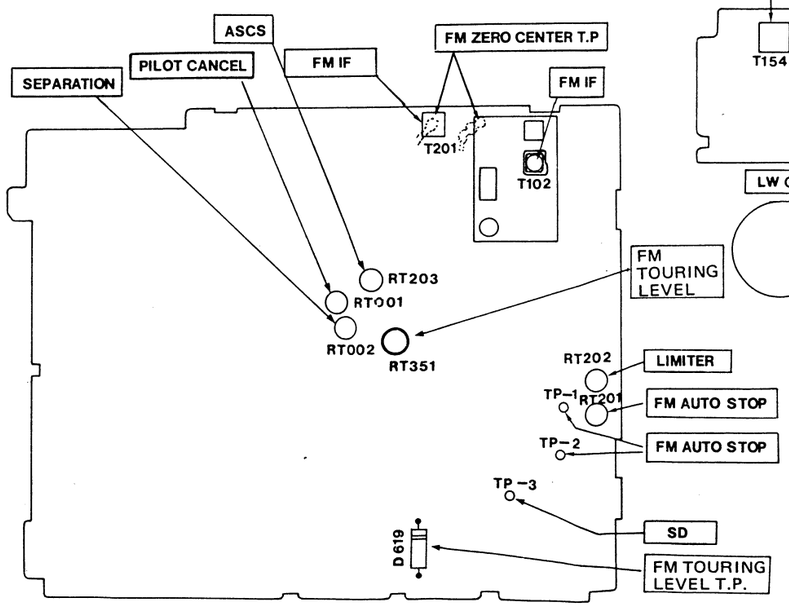


Fig. 2

AM P.C.BOARD

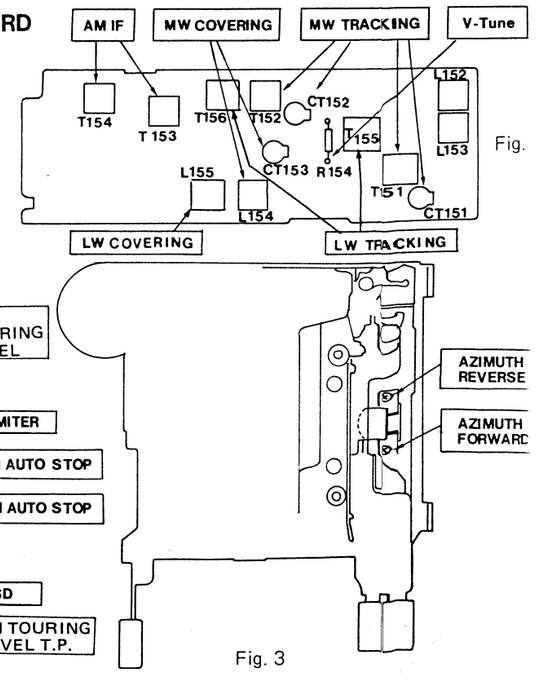


Fig. 3

Note:

1. AM-IF
   Feed in weak signal from the signal generator and adjust T153, T154 for maximum gain.
2. FM-IF
   1) Feed a 94.0 MHz (400 Hz, 30% modulation) signal through the FM dummy antenna to the antenna jack and tune the radio.
   2) Connect the DC volt meter to the FM Zero Center T-P's which are located on the pattern side of Main PCB. (See Fig. 2.)
   3) Set the signal generator output to 20 dBμ and adjust T201 so that reading of the DC volt meter is 0V ±50 mV.
   4) Feed in a weak signal from the signal generator and adjust T102 which is in the FM Tuner Pack (See Fig. 2.), so that the output of the speaker terminal (4Ω load) is maximum.
3. FM Limiter
   1) Set the signal generator output to 74 dBμ and adjust the volume control so that the voltage of the speaker terminal (4 Ω load) is 1.41 V.
   2) Set the signal generator output to 12 dBμ and adjust RT202 so that the voltage of speaker terminal (4 Ω load) is 1.41V −3 dB (Fig. 4).

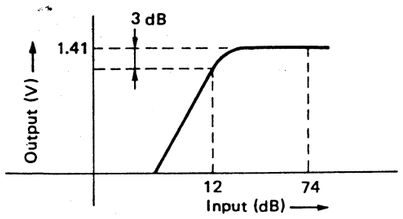


Fig. 4

4. FM Pilot Canceller
   1) Feed a 94.0 MHz (400 Hz, Main & Sub 30%, pilot 10% modulation), 74 dBμ signal through the FM dummy antenna to the antenna jack and tune the radio.
   2) Set the signal generator modualtion to 10% of pilot only and adjust R001 (See Fig. 2.) so that the leaking pilot signal from the speaker terminal (4 Ω load) is minimum.
5. FM Separation
   1) Rotate RT203 (See Fig. 2.) to fully clockwise.
   2) Feed a 94.0 MHz (400 Hz, Main & Sub 30%, pilot 10% modulation), 74 dBμ signal through the FM dummy antenna to the antenna jack and adjust RT002 so that the optimum separation is 25 dB ±5 dB.
6. FM ASCS
   1) Feed a 94.0 MHz (400 Hz, Main & Sub 30%, pilot 10% modulation), 40 dBμ signal through the FM dummy antenna to the antenna jack and adjust RT203 so that the separation is 10 dB.
   2) Set the signal generator output to 74 dBμ and check the separation is 25 ±5 dB.
7. FM Auto Stop Sensitivity
   1) Feed a 94.0 MHz (400 Hz, 30% modulation), 20 dBμ signal through the FM dummy antenna jack and tune the radio.
   2) Connect TP-1 and TP-2 to ground.
   3) Adjust RT201 so that the voltage on TP-3 is 20 mV ~ 1.0 V.
   4) Check the FM auto stop sensitivity on local is 40 dBμ ±10 dBμ.
   5) Check the FM auto stop sensitivity on DX is 20 dBμ ±4 dBμ.
8. FM Touring Level
   1) Feed a 94.0 MHz (400 Hz, Main & Sub 30%, pilot 10%, SK 57 kHz 5% — BK 60%, DK 30% modulation) 74 dBμ signal through the FM dummy antenna to the antenna jack and tune radio.
   2) Set the signal generator output to 26 dBμ, SK on, BK on, DK off.
   3) Connect Anode of D619 to input of syncro-oscilloscope and adjust RT351 so that reading of syncro oscilloscope is 35 μS. (Fig. 5)

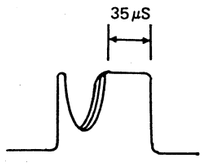


Fig. 5

CASSETTE PLAYER

Item	Adjustments	Mode	Test Tape	Input Terminal	Output Terminal	Adjust	Adjusted Value	Remarks
1	Head azimuth	Playback	Head azimuth test tape (10kHz, −10dB)	——	Speaker terminal (4Ω load)	Azimuth adjusting screw	Output max.	See Note 1

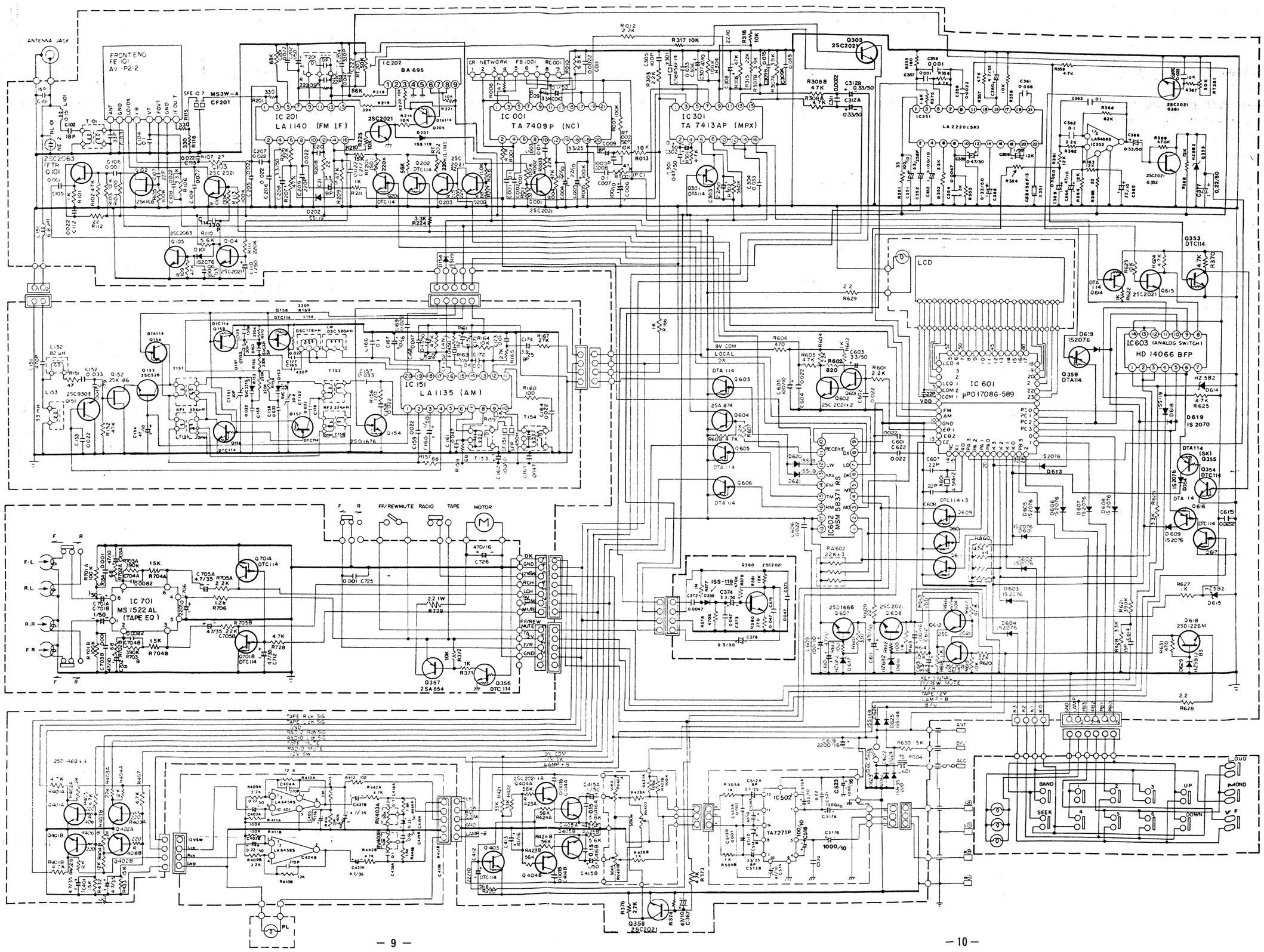
Note :

1. Adjust the azimuth adjustment screw for the output of forward (L ch, R ch) and reverse (L ch, R ch) both are maximum.

INSPECTION OF MECHANISM

	Inspection Item		Reference Value	Remarks
1	Driving power	Forward	More than 90g	Measure the force in the forward direction in the PLAY mode.
		Reverse	More than 90g	Measure the force in the reverse direction in the PLAY mode.
2	Torque	Take-up	35– 65g-cm	Measure the torque of the reel disk in the forward/ reverse direction in the PLAY mode.
		Fast Forward	80—140g-cm	Measure the torque of the real disk in the F. FORWARD mode.
		Rewind	80—140g-cm	Measure the torque of the reel disk in the REWIND mode.
3	Back tension	Forward	2—6g-cm	Measure the torque of the reel disk in the reverse direction in the PLAY mode.
		Reverse	2—6g-cm	Measure the torque of the reel disk in the forward direction in the PLAY mode

SCHEMATIC DIAGRAM

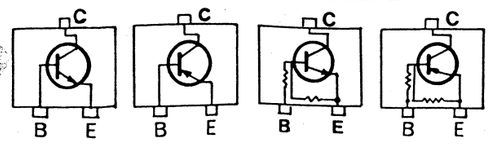


VOLTAGES

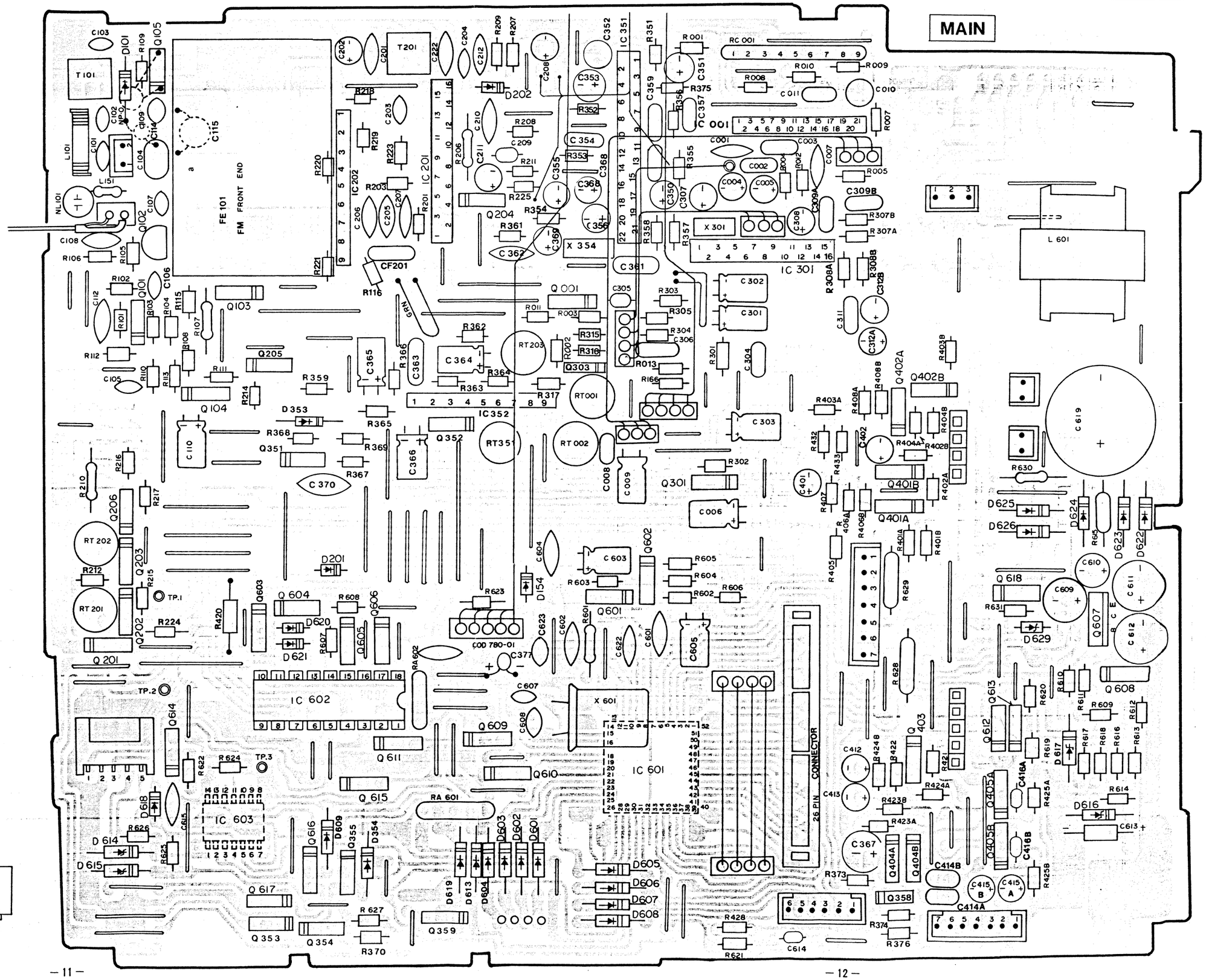
	B (G)	C (D)	E (S)	REMARKS
Q 001	0.1 0.6	0.0 0.0	0 0	FM NO SIGNAL INPUT FM 74dBμ INPUT
Q 101	2.9	9.3	2.3	FM
(Q 102)	(0.0)	(8.4)	(0)	FM
Q 103	0.1 0.6	7.4 0.0	0 0	FM FM SEEK (LOCAL)
Q 104	0.6	0.1	0	FM
Q 105	0.0 0.6	0.0 0.0	0 0	FM FM 74dBμ INPUT
Q 201	0.0 8.8	3.4 0.0	0 0	FM FM SEEK (DX)
Q 202	0.0 6.6	3.4 0.0	0 0	FM FM SEEK (LOCAL)
Q 203	0.6 0.1	0.0 2.1	0 0	FM NO SIGNAL INPUT FM 74dBμ INPUT
Q 204	0.7 0.0	0.2 5.2	0 0	FM NO SIGNAL INPUT FM 74dBμ INPUT
Q 205	0.1 9.2	9.2 0.0	9.2 9.2	FM NO SIGNAL INPUT DETUNE 50kHz
Q 206	0.1 0.6	0.6 0.1	0 0	FM NO SIGNAL INPUT FM 74dBμ INPUT
Q 301	9.3 0.2	8.5 9.5	9.4 9.5	FM FM
Q 303	0.2 4.7	9.2 9.2	0.1 4.2	FM NO SIGNAL INPUT FM 74dBμ INPUT
Q 351	0.1 0.6	0.1 0.0	0 0	FM NO SIGNAL INPUT FM 74dBμ INPUT
Q 352	0.6	1.8	0	FM NO SIGNAL INPUT
Q 353	5.5 0.6	0.0 3.4	0 0	SK. BK OFF SK. BK ON
Q 354	0.0 3.4	— 0.0	0 0	SK. BK OFF SK. BK ON
Q 355	—	—	—	
Q 358	0.7 0.0	0.0 0.0	0 0.0	(VF) DK OFF (VF) DK ON
Q 401 A	0.6 0.0	0.0 0.0	0 0	RADIO TAPE
Q 401 B	0.6 0.0	0.0 0.0	0 0	RADIO TAPE
Q 402 A	0.0 0.6	0.0 0.0	0 0	RADIO TAPE
Q 402 B	0.0 0.6	0.0 0.0	0 0	RADIO TAPE
Q 403	1.6 0.0	0.0 6.4	0 0	LOUD OFF LOUD ON
Q 404 A	0.0 0.8	0.0 0.3	0.1 0.3	LOUD OFF LOUD ON
Q 404 B	0.0 0.8	0.0 0.3	0.1 0.3	LOUD OFF LOUD ON
Q 405 A	0.6 0.0	0.1 0.1	0.1 0.3	LOUD OFF LOUD ON
Q 405 B	0.6 0.0	0.1 0.1	0.1 0.3	LOUD OFF LOUD ON
Q 601	1.1	8.1	0.6	FM 94MHz
Q 602	0.6	2.4	0	FM 94MHz
Q 603	9.1 0.7	1.2 9.3	9.4 9.5	FM AM
Q 604	9.5 8.6	0.2 9.2	9.5 9.4	AM FM
Q 605	0.2 9.3	9.3 0.0	9.4 9.4	RADIO TAPE
Q 606	9.3 0.2	0.0 9.3	9.4 9.4	RADIO TAPE
Q 607	9.5	14.3	10.0	
Q 608	5.8	11.0	5.2	
Q 609	—	—	—	
Q 610	—	—	—	
Q 611	—	—	—	
Q 612	0.6	4.9	0.6	
Q 613	1.20	0.6	0.6	
Q 614	0.1 8.8	4.8 0.1	4.8 4.8	FM ST FM MONO
Q 615	0.2 0.6	4.8 0.0	0 0	FM, AM FM AM WHEN STOPPING OURING SEEK
Q 616	0.0	—	—	TAPE
Q 617	0.0 14.2	— 0.0	0 0	RADIO TAPE
Q 618	9.7	14.2	9.1	

MEASURMENT POINT
TR

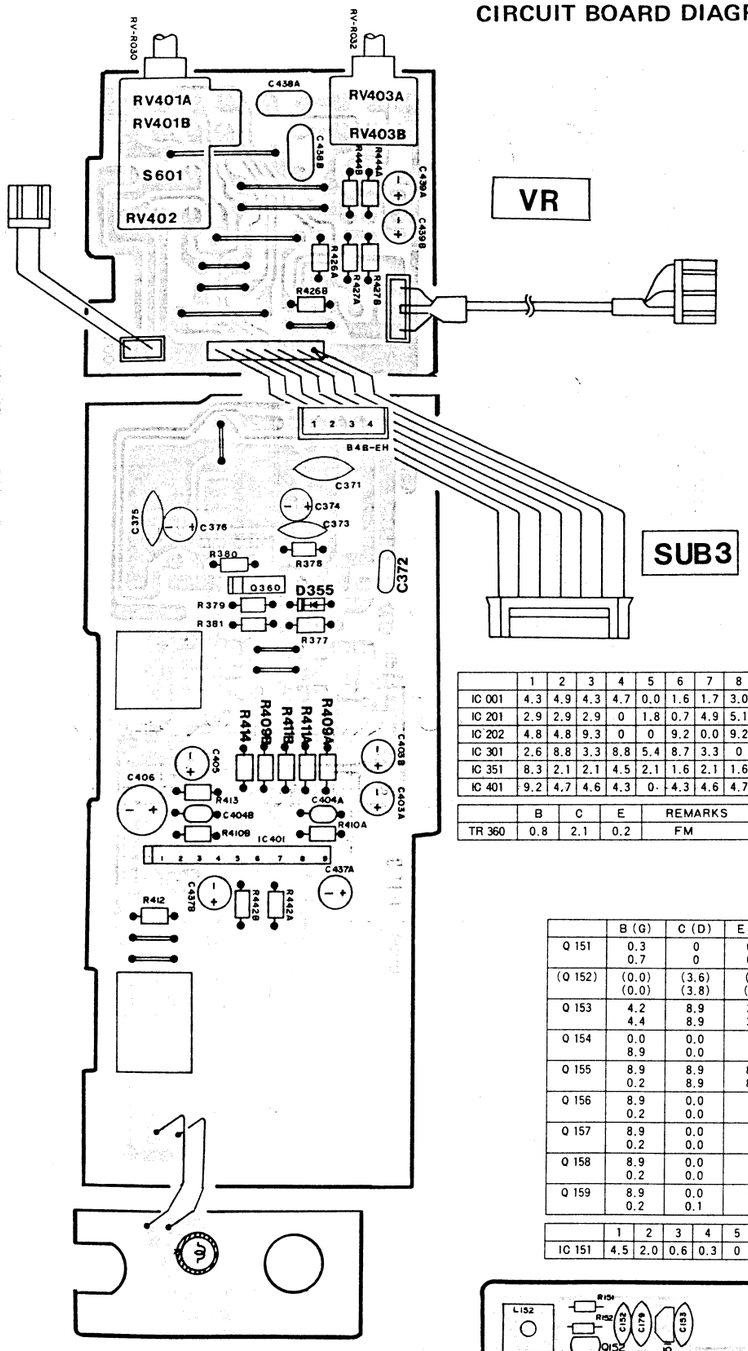
DIGITRANSISTER



CIRCUIT BOARD DIAGRAM



CIRCUIT BOARD DIAGRAM

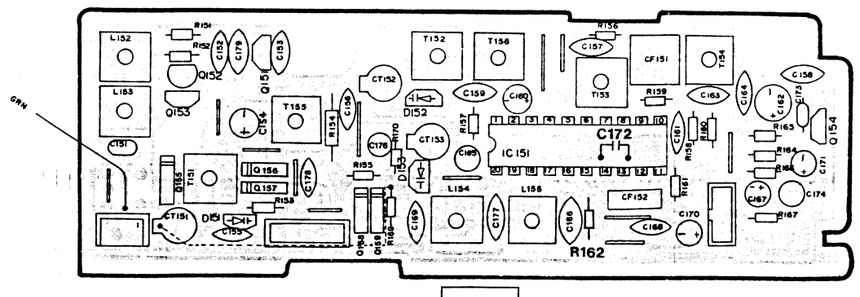


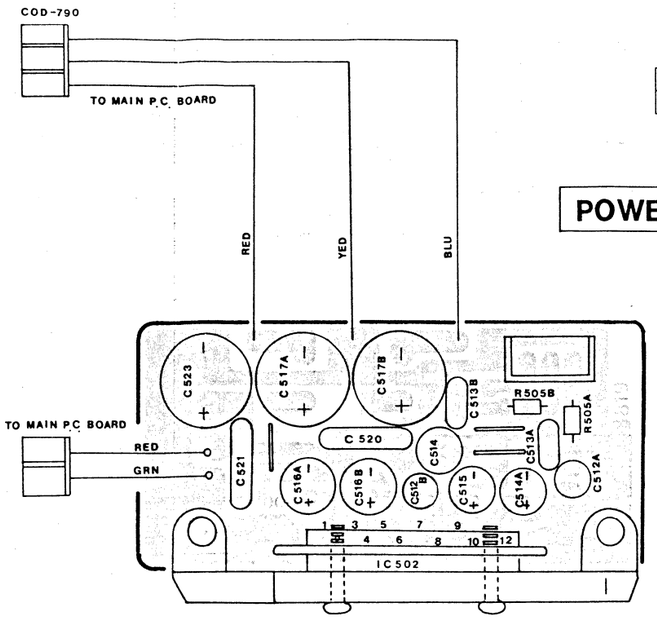
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
IC 001	4.3	4.9	4.3	4.7	0.0	1.6	1.7	3.0	3.0	2.3	0	0.5	0.0	4.8	4.8	0.0	0.7	2.1	0.0	3.4	9.5	
IC 201	2.9	2.9	2.9	0	1.8	0.7	4.9	5.1	5.0	0	5.0	8.9	5.0	3.3	0.6	4.1						
IC 202	4.8	4.8	9.3	0	0	9.2	0.0	9.2	9.2													
IC 301	2.6	8.8	3.3	8.8	5.4	8.7	3.3	0	0.0	4.9	0.0	4.1	3.0	4.1	3.0	9.5						
IC 351	8.3	2.1	2.1	4.5	2.1	1.6	2.1	1.6	3.1	0	6.4	2.9	2.9	2.9	0.6	3.7	0.0	3.1	3.1	3.1	3.1	4.0
IC 401	9.2	4.7	4.6	4.3	0	4.3	4.6	4.7	9.2													

	B	C	E	REMARKS
TR 360	0.8	2.1	0.2	FM

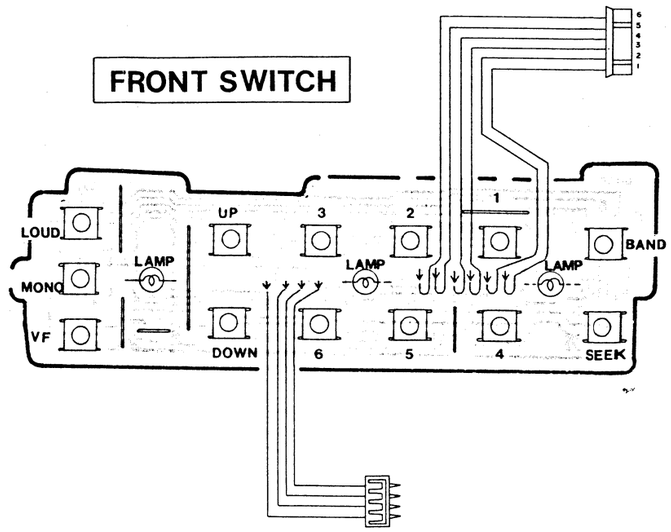
	B (G)	C (D)	E (S)	REMARKS
Q 151	0.3 0.7	0 0	0.0 0.0	AM AM 74dBμ INPUT
(Q 152)	(0.0) (0.0)	(3.6) (3.8)	(0) (0)	AM AM 74dBμ INPUT
Q 153	4.2 4.4	8.9 8.9	3.6 3.8	AM AM 74dBμ INPUT
Q 154	0.0 8.9	0.0 0.0	0 0	AM AM SEEK (LOCAL)
Q 155	8.9 0.2	8.9 8.9	8.9 8.9	MW LW
Q 156	8.9 0.2	0.0 0.0	0 0	MW LW
Q 157	8.9 0.2	0.0 0.0	0 0	MW LW
Q 158	8.9 0.2	0.0 0.0	0 0	MW LW
Q 159	8.9 0.2	0.0 0.1	0 0	MW LW

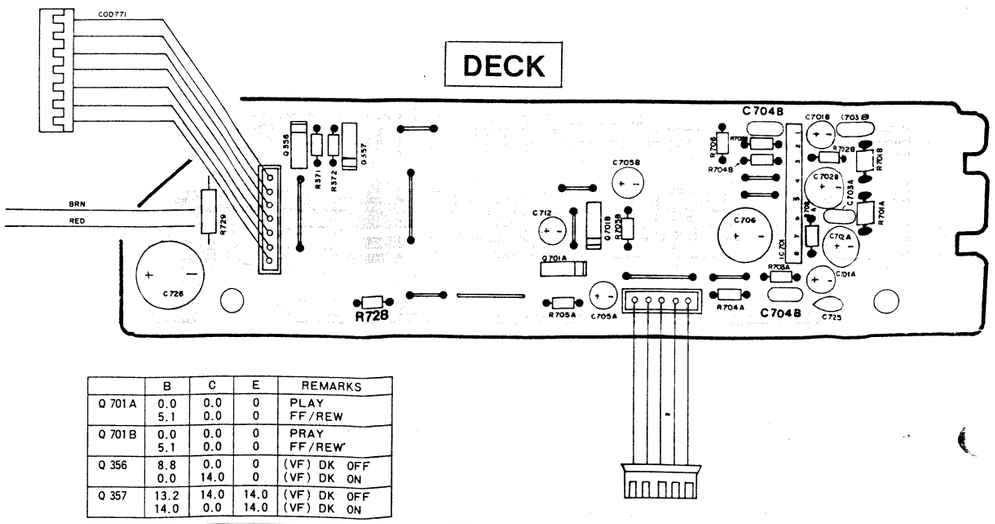
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC 151	4.5	2.0	0.6	0.3	0	2.0	8.8	8.8	0.8	9.3	0.7	0	2.3	9.3	1.3	0.0	2.2	5.7	5.7	3.0





	1	2	3	4	5	6	7	8	9	10	11	12
IC 502	7.1	13.4	14.1	13.4	7.1	0	1.4	1.4	0	3.5	1.4	1.4

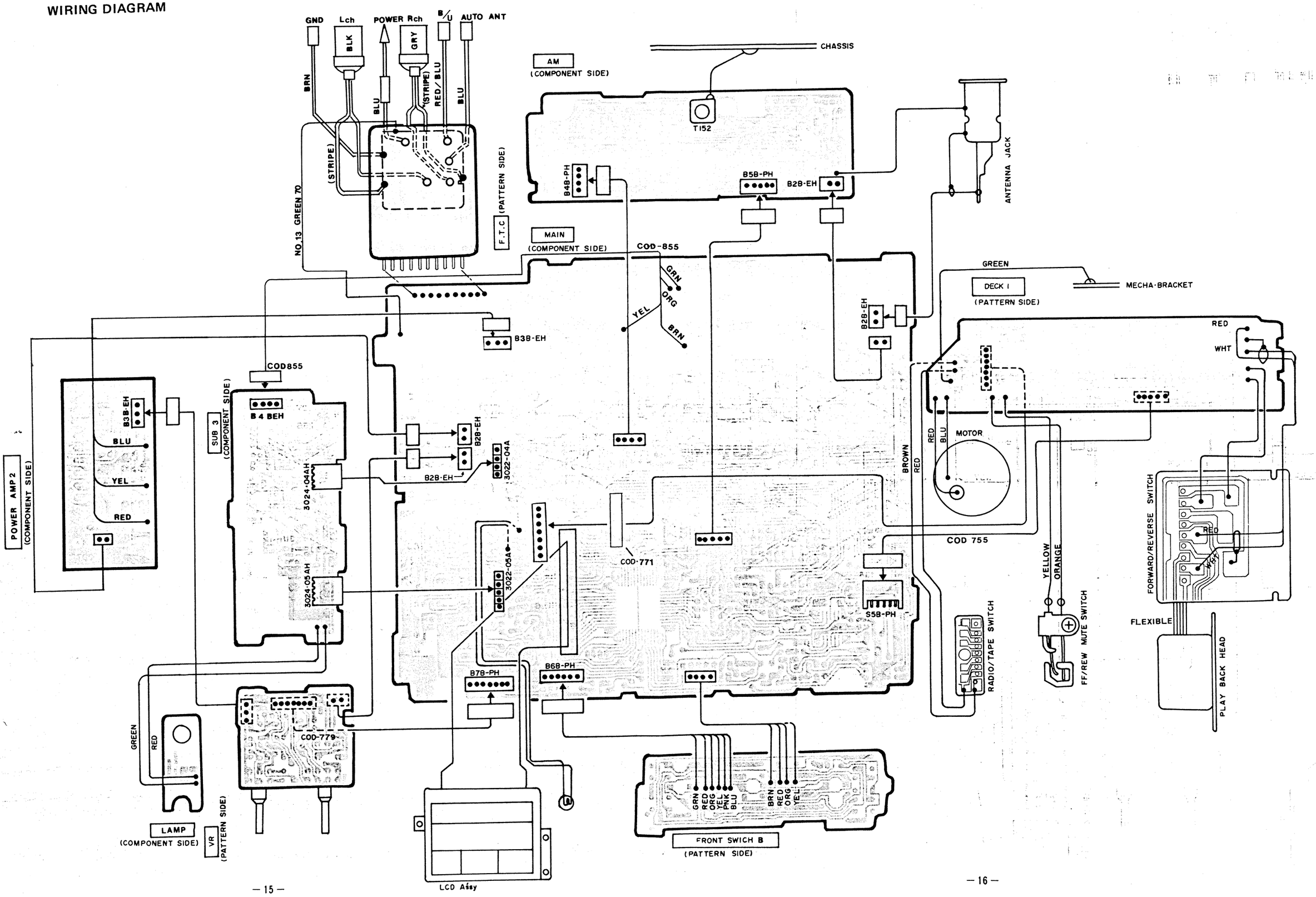




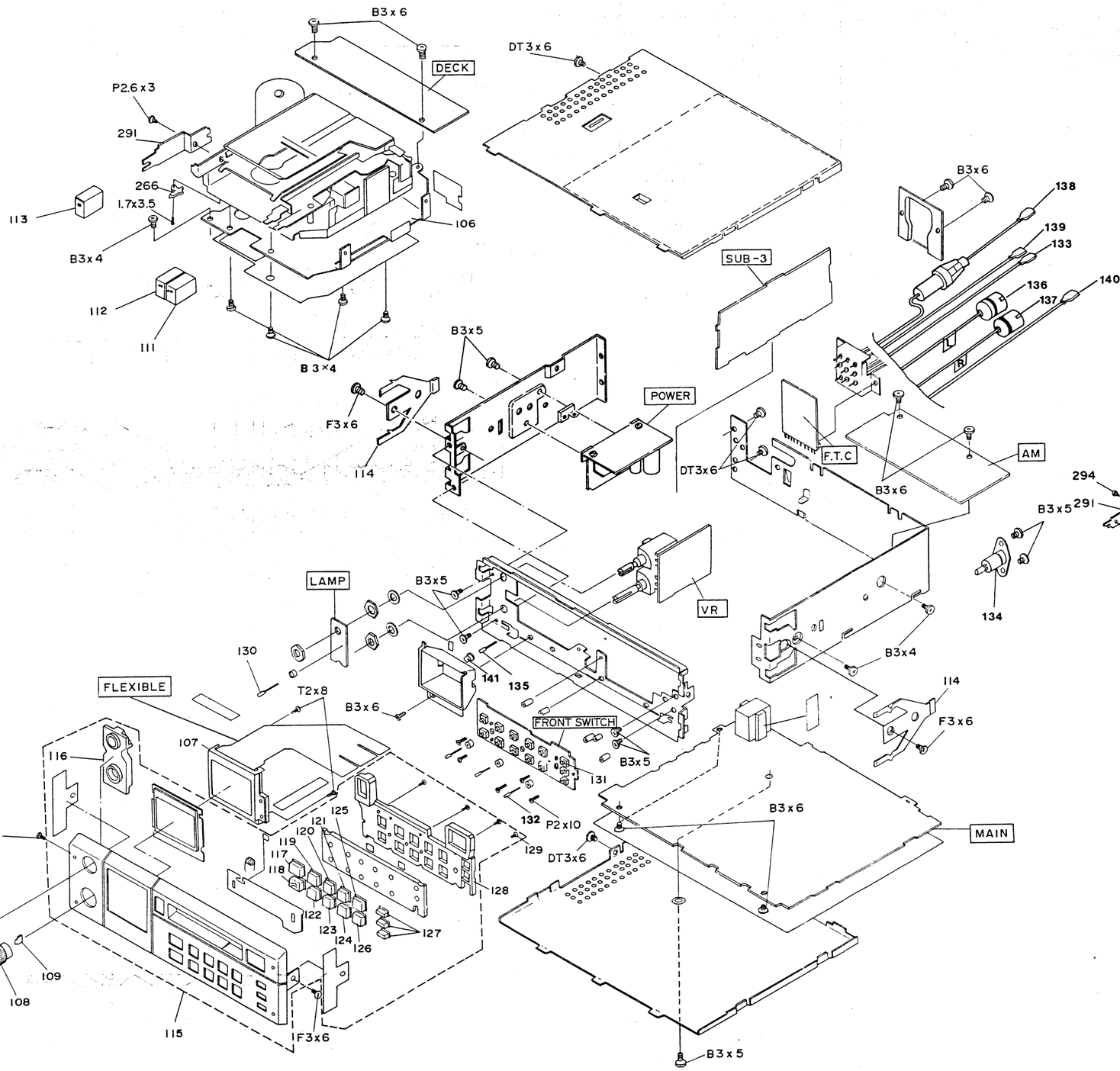
	B	C	E	REMARKS
Q 701 A	0.0 5.1	0.0 0.0	0 0	PLAY FF/REW
Q 701 B	0.0 5.1	0.0 0.0	0 0	PRAY FF/REW
Q 356	8.8 0.0	0.0 14.0	0 0	(VF) DK OFF (VF) DK ON
Q 357	13.2 14.0	14.0 0.0	14.0 14.0	(VF) DK OFF (VF) DK ON

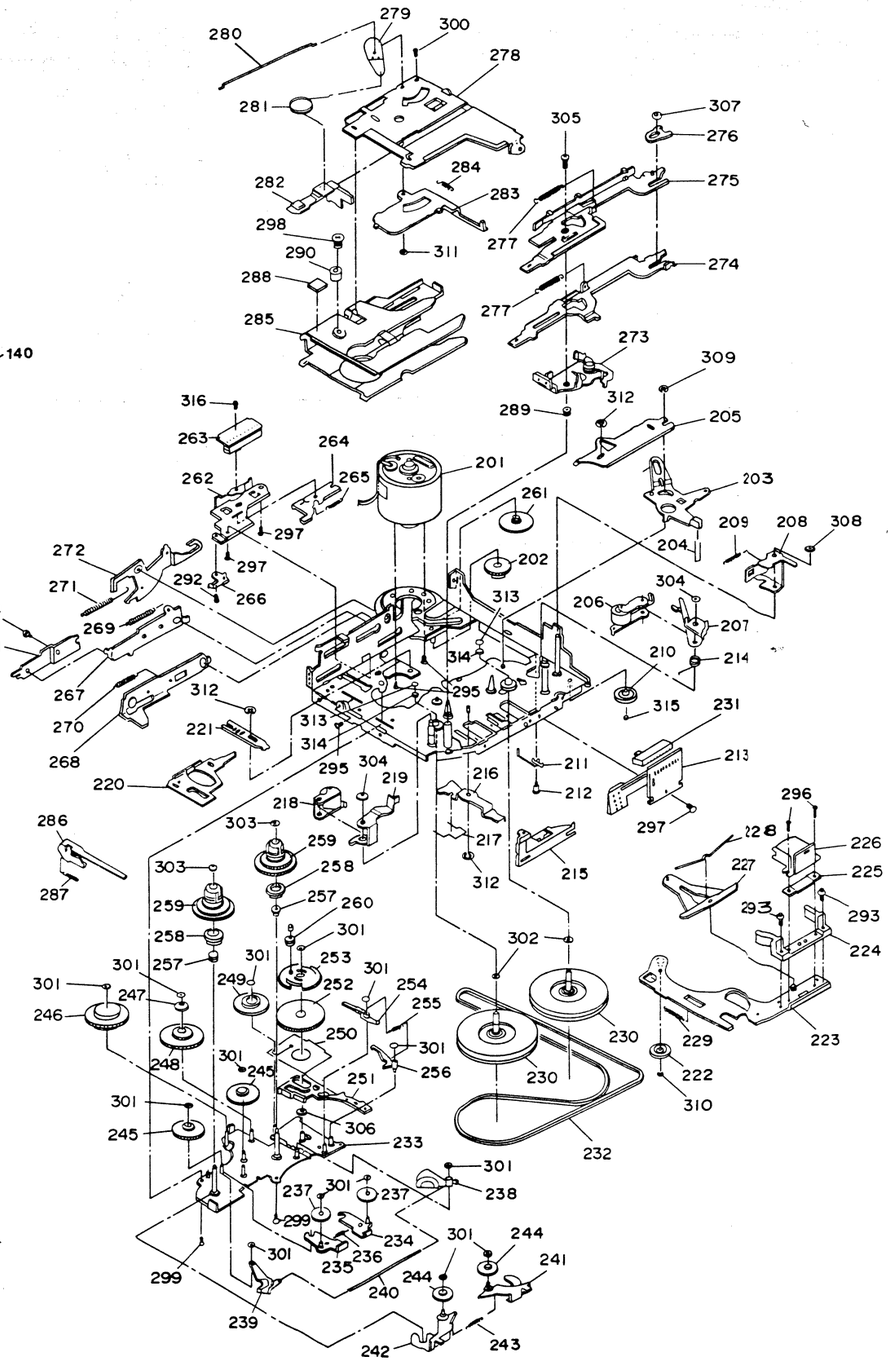
	1	2	3	4	5	6	7	8
IC 701	1.1	0.7	3.1	9.0	0	3.1	0.7	1.1

WIRING DIAGRAM



EXPLODED VIEW





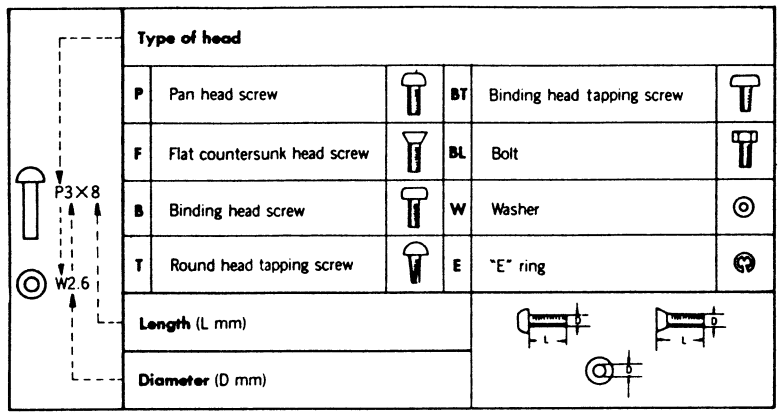
REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C 009	0256837	ELECTROLYTIC 3.3UF 25V
C 010	0256139	ELECTROLYTIC 0.1MF,50V
C 174	0256837	ELECTROLYTIC 3.3UF 25V
C 211	0256837	ELECTROLYTIC 3.3UF 25V
C 302	0256520	ELECTROLYTIC CAPACITOR 0.1MF
C 303	0256197	ELECTROLYTIC 2.2MF,50V
C 312A	0256611	ELECTROLYTIC 0.33UF 50V
C 312B	0256611	ELECTROLYTIC 0.33UF 50V
C 351	0256837	ELECTROLYTIC 3.3UF 25V
C 353	0256837	ELECTROLYTIC 3.3UF 25V
C 366	0256523	ELECTROLYTIC 0.33MF,25V
C 368	0256523	ELECTROLYTIC 0.33MF,25V
C 369	0256523	ELECTROLYTIC 0.33MF,25V
C 403A	0256610	ELECTROLYTIC 0.22UF 50V
C 403B	0256610	ELECTROLYTIC 0.22UF 50V
C 508	0256426	CAPACITOR ELECTROLYTIC 1500UF 16V
C 512A	0256837	ELECTROLYTIC 3.3UF 25V
C 512B	0256837	ELECTROLYTIC 3.3UF 25V
C 611	0256789	CAPACITOR 470UF 10V ELECTROLYTIC
C 701A	0256113	ELECTROLYTIC CAPACITOR 470 MICROF 6.3V
C 701B	0256113	ELECTROLYTIC CAPACITOR 470 MICROF 6.3V
C 705A	0256613	ELECTROLYTIC 4.7UF 35V
C 705B	0256613	ELECTROLYTIC 4.7UF 35V
C 712	0256113	ELECTROLYTIC CAPACITOR 470 MICROF 6.3V
CT 151	5058591	TRIMMER 40PF
CT 152	5058591	TRIMMER 40PF
CT 153	5058591	TRIMMER 40PF
		RESISTORS
R 503A	0149291	CARBON FILM 10HM+-10% 1W
R 503B	0149291	CARBON FILM 10HM+-10% 1W
R 628	0171021	METAL OXIDE 2.20HM+-5% 1/4W
R 629	0171021	METAL OXIDE 2.20HM+-5% 1/4W
R 729	0171021	METAL OXIDE 2.20HM+-5% 1/4W
RA 601	5060091	RESISTOR BLOCK
RC 001	5060101	CR BLOCK
RC 602	5060092	RESISTOR BLOCK
RT 001	5007552	SEMI VARIABLE 47KOHM
RT 002	5007551	RESISTOR SEMI VARIABLE 10K OHM
RT 351	5007552	SEMI VARIABLE 47KOHM
RV 501	5010091	RESISTOR VARIABLE
RV 502	5010071	RESISTOR VARIABLE
		SEMI-CONDUCTORS
D 101	5330131	DIODE 1S2076
D 154	5332682	DIODE 1SS119-F
D 201	5332682	DIODE 1SS119-F
D 202	5332682	DIODE 1SS119-F
D 301	5332682	DIODE 1SS119-F
D 353	5331012	DIODE HZ5B
D 354	5330131	DIODE 1S2076
D 601	5330131	DIODE 1S2076
D 602	5330131	DIODE 1S2076
D 603	5330131	DIODE 1S2076
D 604	5330131	DIODE 1S2076
D 605	5330131	DIODE 1S2076
D 606	5330131	DIODE 1S2076
D 607	5330131	DIODE 1S2076
D 608	5330131	DIODE 1S2076
D 609	5330131	DIODE 1S2076
D 613	5330131	DIODE 1S2076
D 614	5331012	DIODE HZ5B
D 615	5331012	DIODE HZ5B
D 615	5331018	DIODE HZ6B2
D 617	5330556	DIODE HZ11A2
D 618	5332682	DIODE 1SS119-F
D 619	5330131	DIODE 1S2076
D 620	5332682	DIODE 1SS119-F
D 621	5332682	DIODE 1SS119-F
D 622	5330101	RECTIFIER SILICON V06G
D 623	5330101	RECTIFIER SILICON V06G
D 624	5333111	DIODE SVC321SP
D 625	5333221	DIODE 1SS144
D 626	5333221	DIODE 1SS144
D 629	5333231	DIODE HZS9.1JB3
D 701	5330325	DIODE HZ9A2
IC 001	5367531	IC TA7409P
IC 151	5364401	IC LA1135
IC 201	5351801	IC LA1140
IC 202	5363701	IC BA695
IC 301	5367541	IC TA7413AP
IC 351	5352131	IC LA2200
IC 352	5353951	IC LA6458S
IC 401	5353951	IC LA6458S
IC 501A	5364471	IC LA4461
IC 501B	5364421	IC LA4460
IC 502	5368751	IC TA7271P
IC 601	5362957	IC UPD1708G-589
IC 602	5369681	IC MSM58371RS
IC 603	5368701	IC HD14066BFP
IC 701	5367491	IC M51522AL
Q 001	5321661	TRANSISTOR 2SC2021R
Q 101	5324481	TRANSISTOR 2SC2063P
Q 102	5322371	TRANSISTOR 2SK168
Q 103	5321661	TRANSISTOR 2SC2021R
Q 104	5321661	TRANSISTOR 2SC2021R
Q 105	5324481	TRANSISTOR 2SC2063P
Q 151	5324441	TRANSISTOR 2SC930E
Q 152	5323701	TRANSISTOR 2SK186B
Q 153	5324491	TRANSISTOR 2SC536F
Q 154	5324431	TRANSISTOR 2SD1676
Q 155	5324341	TRANSISTOR DTC114EF
Q 156	5324344	TRANSISTOR DTC114
Q 157	5324344	TRANSISTOR DTC114
Q 158	5324344	TRANSISTOR DTC114
Q 159	5324344	TRANSISTOR DTC114
Q 201	5324344	TRANSISTOR DTC114
Q 202	5324344	TRANSISTOR DTC114
Q 203	5321661	TRANSISTOR 2SC2021R
Q 204	5324344	TRANSISTOR DTC114
Q 205	5324344	TRANSISTOR DTC114
Q 206	5321661	TRANSISTOR 2SC2021R
Q 301	5324341	TRANSISTOR DTA114EF
Q 351	5321661	TRANSISTOR 2SC2021R

SYMBOL-NO	P-NO	DESCRIPTION
		SEMI-CONDUCTORS
Q 352	5321661	TRANSISTOR 2SC2021R
Q 353	5324344	TRANSISTOR DTC114
Q 354	5324344	TRANSISTOR DTC114
Q 358	5321661	TRANSISTOR 2SC2021R
Q 359	5324341	TRANSISTOR DTA114EF
Q 401A	5324461	TRANSISTOR 2SD1469R
Q 401B	5324461	TRANSISTOR 2SD1469R
Q 402A	5324461	TRANSISTOR 2SD1469R
Q 402B	5324461	TRANSISTOR 2SD1469R
Q 403	5324344	TRANSISTOR DTC114
Q 404A	5321661	TRANSISTOR 2SC2021R
Q 404B	5321661	TRANSISTOR 2SC2021R
Q 405A	5321661	TRANSISTOR 2SC2021R
Q 405B	5321661	TRANSISTOR 2SC2021R
Q 601	5321661	TRANSISTOR 2SC2021R
Q 602	5321661	TRANSISTOR 2SC2021R
Q 603	5324344	TRANSISTOR DTC114
Q 604	5322882	TRANSISTOR 2SA874Q
Q 605	5324344	TRANSISTOR DTC114
Q 606	5324344	TRANSISTOR DTC114
Q 607	5324451	TRANSISTOR 2SD1382Q
Q 609	5324344	TRANSISTOR DTC114
Q 610	5324344	TRANSISTOR DTC114
Q 611	5324344	TRANSISTOR DTC114
Q 612	5321661	TRANSISTOR 2SC2021R
Q 613	5321661	TRANSISTOR 2SC2021R
Q 614	5324344	TRANSISTOR DTC114
Q 615	5321661	TRANSISTOR 2SC2021R
Q 616	5324344	TRANSISTOR DTC114
Q 617	5324344	TRANSISTOR DTC114
Q 618	5324471	TRANSISTOR 2SD1226MR
Q 701A	5324344	TRANSISTOR DTC114
Q 701B	5324344	TRANSISTOR DTC114
		TRANSFORMERS
T 101	5126911	FM RF COIL
T 152	5120359	AM RF TRANSFORMER
T 153	5130151	AM IF TRANSFORMER
T 154	5120272	COIL-AM IF TRAP
T 155	5120359	AM RF TRANSFORMER
T 156	5120576	LW ANT TRANSFORMER
T 201	5126911	FM RF COIL
		COILS
L 101	5128261	COIL 0.15UH
L 151	5152486	CHOKE COIL 6.8UH
L 152	5120924	COIL
L 153	5120808	COIL
L 154	5120386	LW OSCILLATOR COIL
L 155	5120574	LW OSC TRANSFORMER
L 601	5220113	CHOKE COIL 1MH
		CRYSTALS
X 301	5160682	CERAMIC FILTER
X 351	5160683	CERAMIC FILTER

SYMBOL-NO	P-NO	DESCRIPTION
X 601	5781162	CRYSTAL
		MISCELLANEOUS
CF 151	5160141	CERAMIC FILTER
CF 152	5160161	CERAMIC FILTER 450KHZ
CF 201	5160383	CERAMIC FILTER 10.7MHZ
FE 101	5587192	FM TUNER PACK
NL 101	5766071	NEON LAMP
		FOR FINAL ASSEMBLY
101	7063915	SCREW ASSEMBLY
102	7350171	SUPPORT STRAP
103	6766782	SUPPORT PIECE
104	7361241	SET BRACKET ASSEMBLY
105	4500371	SHAFT
		FOR CASE ASSEMBLY
106	7369121	BRACKET
107	5311863	LCD ASSEMBLY
108	6078041	KNOB (VOLUME)
109	6539781	SPRING
110	6078051	KNOB (TONE)
111	6077471	BUTTON (FF)
112	6077481	BUTTON (REW)
113	6077491	BUTTON (EJECT)
114	6537431	SIDE SPRING
115	6229016	ESCUTCHEON ASSEMBLY
116	6782391	ILLUMINATOR
117	6077521	BUTTON (BAND)
118	6077531	BUTTON (SEEK)
119	6077541	BUTTON (1)
120	6077551	BUTTON (2)
121	6077561	BUTTON (3)
122	6077571	BUTTON (4)
123	6077581	BUTTON (5)
124	6077591	BUTTON (6)
125	6078001	BUTTON (UP)
126	6078011	BUTTON (DOWN)
127	6078021	BUTTON (LOUD, MONO, VF)
128	6782401	ILLUMINATOR
129	7789341	SCREW
130	5782741	PILOT LAMP
131	5634631	SWITCH
132	5782741	PILOT LAMP
133	5885673	RELAY CORD (AUTO ANTENNA)
134	5675341	ANTENNA JACK
135	5782751	LAMP
136	5891791	2P DIN CORD (SPEAKER-L)
137	5891792	2P DIN CORD (SPEAKER-R)
138	5885671	POWER CORD
139	5885672	EARTH CORD
140	5885674	BACK-UP CORD
141	6570711	CAP
		MECHANISM (TN-R1)
201	7045601	MOTOR ASSEMBLY

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
202	7045602	MAIN GEAR
203	7045603	CHANGE PLATE
204	7045604	SPRING
205	7045605	MAIN PLATE (M)
206	7045606	PRESSURE ROLLER ARM
207	7045607	ARM ACTUATOR
208	7045608	LOCK PLATE
209	7045609	SPRING
210	7045610	PULLEY
211	7045611	SPRING
212	7045612	SCREW
213	7045613	HEAD FLEXIBLE CBA
214	7045614	SPRING
215	7045615	SLIDE PLATE
216	7045616	FR ACTUATOR
217	7045617	SPRING
218	7045618	PRESSURE ROLLER ARM (R)
219	7045619	PULL PLATE
220	7045620	TAKE UP GEAR ACTUATOR
221	7045621	PUSH PLATE
222	7045622	ROLLER
223	7045623	HEAD PANEL
224	7045624	TAPE GUIDE
225	7045625	PLATE
226	7045626	HEAD
227	7045627	PRESSURE ROLLER ACTUATOR
228	7045628	SPRING
229	7045629	SPRING
230	7045630	FLYWHEEL
231	7045631	SWITCH
232	7045632	BELT
233	7045633	GEAR PLATE
234	7045634	FF GEAR PLATE
235	7045635	REW GEAR PLATE
236	7045636	SPRING
237	7045637	FF GEAR
238	7045638	END DETECTOR PLATE (F)
239	7045639	END DETECTOR PLATE (R)
240	7045640	END SENSOR PUSH BAR
241	7045641	GEAR PLATE
242	7045642	GEAR PLATE
243	7045643	SPRING
244	7045644	GEAR
245	7045645	GEAR
246	7045646	CLUTCH ASSEMBLY
247	7045647	GEAR
248	7045648	GEAR
249	7045649	GEAR
250	7045650	SLIP SHEET
251	7045651	PLATE
252	7045652	GEAR
253	7045653	GEAR
254	7045654	ARM
255	7045655	SPRING
256	7045656	ARM
257	7045657	SPRING
258	7045658	PIECE
259	7045659	TAKE UP REEL
260	7045660	COLLAR
261	7045661	GEAR
262	7045662	BRACKET
263	7045663	PRINT BASE
264	7045664	SWITCH ACTUATOR
265	7045665	SPRING
266	7045666	SWITCH
267	7045667	PUSH LEVER
268	7045668	PUSH PLATE
269	7045669	SPRING
270	7045670	SPRING
271	7045671	SPRING
272	7045672	LEVER
273	7045673	BRACKET
274	7045674	LEVER
275	7045675	LEVER
276	7045676	PLATE
277	7045677	SPRING
278	7045678	CASE LIFTER
279	7045679	PE PLATE
280	7045680	SPRING
281	7045681	SPRING
282	7045682	SLIDER
283	7045683	PLATE
284	7045684	SPRING
285	7045685	CASSETTE CASE
286	7045686	PLATE
287	7045687	SPRING
288	7045688	RUBBER
289	7045689	SPRING
290	7045690	STOPPER
291	7045691	LEVER
292	7045692	SCREW (1.7X3.5)
293	7045693	SCREW (2X5)
294	7045694	SCREW (2.6X2.5)
295	7045695	SCREW (2X2)
296	7045696	SCREW (2X4)
297	7045697	SCREW (2X3)
298	7045698	SCREW (2X2.5)
299	7045699	SCREW (2X3.5)
300	7045700	SCREW (2X4)
301	7045701	WASHER
302	7045702	WASHER
303	7045703	WASHER
304	7045704	WASHER
305	7045705	SCREW (2.6X4.5)
306	7045706	WASHER
307	7045707	WASHER
308	7045708	WASHER
309	7045709	E RING
310	7045710	E RING
311	7045711	E RING
312	7045712	E RING
313	7045713	WASHER
314	7045714	WASHER
315	7045715	WASHER
316	7045716	SCREW (2X4)



Type of head					
P	Pan head screw		BT	Binding head tapping screw	
F	Flat countersunk head screw		BL	Bolt	
B	Binding head screw		W	Washer	
T	Round head tapping screw		E	"E" ring	
Length (L mm)					
Diameter (D mm)					

When ordering hardware excluding stated on these lists, be sure to make your orders with type and size.

INSTALLATION